

### Claims

1. An occupant recognition system for vehicles comprising at  
5 least one pressure sensor arranged beneath the foam of a vehicle seat, at least  
one temperature sensor and an electronic control and/or evaluation unit to which  
the sensors are connected,  
characterized in that means are provided to match the time  
behavior, in particular the time behavior present on changes in the ambient  
10 temperature, of the output signal ( $T_{\text{ECU}}$ ) of the temperature sensor arranged at a  
distance from the pressure sensor or from the seat foam to the time behavior of  
the temperature ( $T_{\text{FOAM}}$ ) prevailing in the region of the pressure sensor or of the  
seat foam.
- 15 2. An occupant recognition system in accordance with claim 1,  
characterized in that the correspondingly matched output signal ( $T_{10}$ ) of the  
temperature sensor in the electronic control and/or evaluation unit is used for the  
compensation of the temperature dependence of the pressure measured via the  
pressure sensor.
- 20 3. An occupant recognition system in accordance with claim 1  
or claim 2, characterized in that the matching means are associated with the  
electronic control and/or evaluation unit.
- 25 4. An occupant recognition system in accordance with any one  
of the preceding claims, characterized in that the matching means include a low-  
pass filter (10).
- 30 5. An occupant recognition system in accordance with claim 4,  
characterized in that the low-pass filter (10) is provided as a software filter.

6. An occupant recognition system in accordance with claim 4 or claim 5, characterized in that a Butterworth filter (10) is provided as the low-pass filter.

5                   7. An occupant recognition system in accordance with claim 5, characterized in that a Butterworth filter of the first order is provided as the low-pass filter (10).

10                   8. An occupant recognition system in accordance with any one of the preceding claims, characterized in that the parameters of the filter (10) are selected such that the filtered output signal ( $T_{10}$ ) of the temperature sensor agrees at least substantially with the foam temperature ( $T_{FOAM}$ ) gained from trial measurements.

15                   9. An occupant recognition system in accordance with any one of the preceding claims, characterized in that the pressure sensor includes a flexible sensor mat filled with fluid.

20                   10. An occupant recognition system in accordance with claim 9, characterized in that the pressure sensor supplies a pressure value corresponding to the pressure inside the sensor mat.

25                   11. An occupant recognition system in accordance with any one of the preceding claims, characterized in that the pressure sensor is arranged directly beneath the seat foam.

30                   12. An occupant recognition system in accordance with any one of the preceding claims, characterized in that the temperature sensor includes a thermistor.

13. An occupant recognition system in accordance with any one of the preceding claims, characterized in that the temperature sensor is arranged in the region of the electronic control and/or evaluation unit.

5                    14. An occupant recognition system in accordance with claim 13, characterized in that the temperature sensor is accommodated in the same housing as the electronic control and/or evaluation unit.

10                   15. An occupant recognition system in accordance with any one of the preceding claims, characterized in that the electronic control and/or evaluation unit is arranged and fastened beneath the vehicle seat.

15                   16. An occupant recognition system in accordance with any one of the preceding claims, characterized in that the pressure measured via the pressure sensor is compared by means of the electronic control and/or evaluation unit with at least one parameter value such as an empty pressure value and/or an allow threshold and that a decision is made in dependence on the result of the comparison whether an airbag is switched on or not, with the relevant parameter value being changed accordingly as part of the compensation of the temperature  
20                   dependence.